

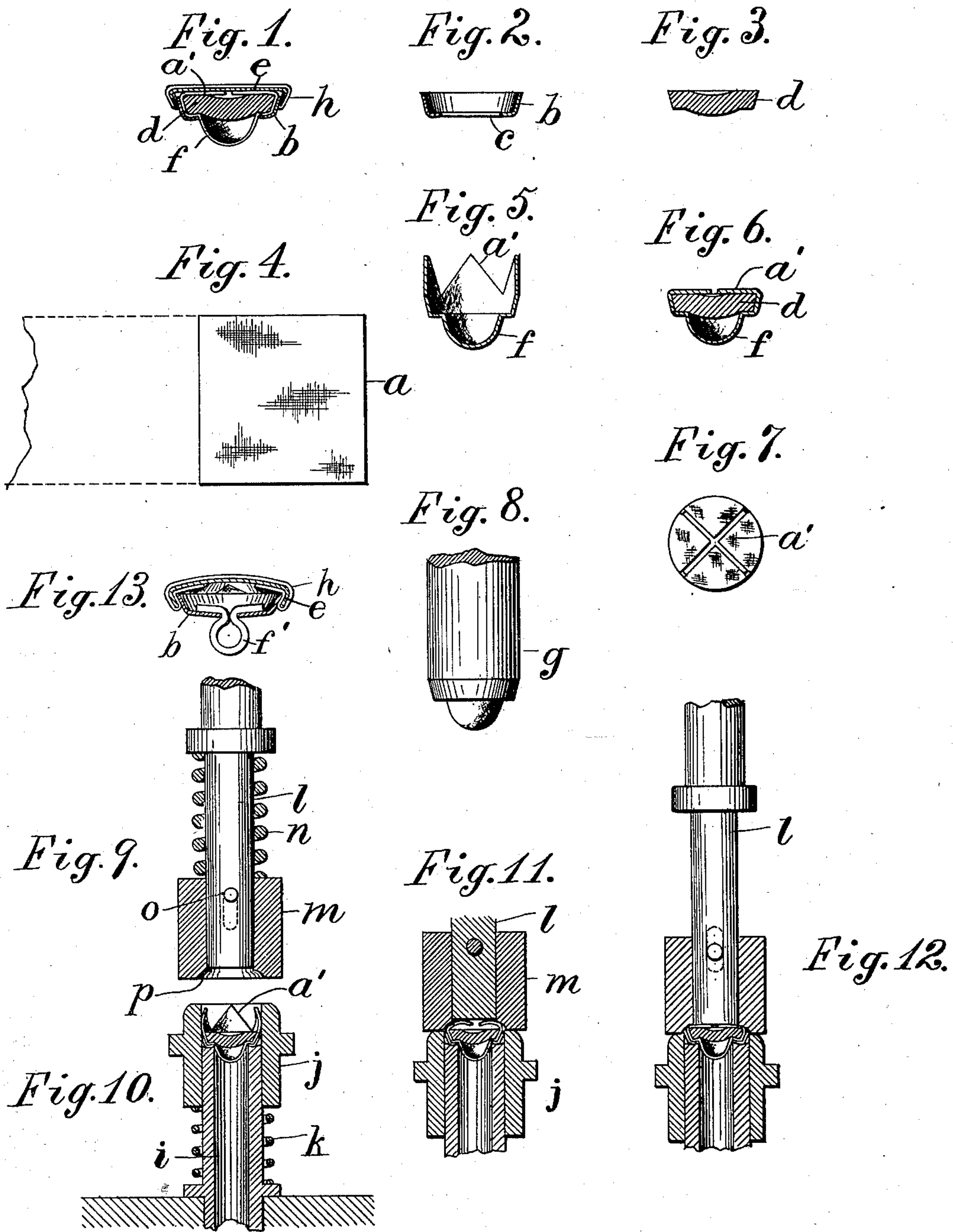
No. 669,996.

Patented Mar. 19, 1901.

F. W. LUDINGTON.
FABRIC COVERED BUTTON.

(Application filed Apr. 5, 1900.)

(No Model.)



Attest:
L. Lee.
Walter H. Talmage.

Inventor.
Frederick W. Ludington,
per Mess. S. Crane, Atty.

UNITED STATES PATENT OFFICE.

FREDERICK W. LUDINGTON, OF WATERBURY, CONNECTICUT, ASSIGNOR TO
THE L. C. WHITE CO., OF SAME PLACE.

FABRIC-COVERED BUTTON.

SPECIFICATION forming part of Letters Patent No. 669,996, dated March 19, 1901.

Application filed April 5, 1900. Serial No. 11,659. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. LUDINGTON, a citizen of the United States, residing at No. 461 North Main street, Waterbury, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Fabric-Covered Buttons, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The present invention relates to an improved construction of the woven or cloth blank for the covering of the shell or wad in fabric-covered buttons by which such covering may be gripped more firmly within the button, less material employed in the preparation of the covers, and the feeding of the blanks to the button-making machinery may be effected automatically.

Fabric-covered buttons are made of metallic sections and are provided in front with a shell having a cloth covering and are sometimes formed with a metal eye on the back and sometimes with a tuft of fibrous material formed of fabric whose edges are secured within a collet by a pasteboard wad. The covering for the shell and that employed to make the tuft have heretofore been cut in circular shape; but in the present invention I make such coverings of square form and turn the four corners of the covering within the shell of the button, against the inner side of which it is firmly pressed by the collet—by the wad, if one be employed.

The covering of a fabric-covered button is of course that piece of woven fabric which covers the front shell of the button when in use; but in forming a tufted button a similar covering is wrapped about the wad, and its margin is secured within the shell of the button at the same time that the margin of the front covering is secured.

For convenience I have used the term "covering" in the present specification to include the covering for the wad, as well as the covering for the front shell of the button. Where the covering for the wad has been cut of circular shape, its margin has been clamped between the wad and the collet to hold the tuft in place; but where such tufted buttons are used in upholstery the strain upon the tuft is

such that the clamping of the edge is often insufficient to prevent the tuft from pulling out of the collet. With round blanks (to secure the tuft firmly) it has been necessary to make the diameter of the circular blank large enough to cover the entire edges of the wad or to turn over upon its flat inner surface, and to secure the front covering upon the shell it has also been necessary to make the circular blank large enough to embrace the entire periphery of the shell and lie upon its inner surface to be gripped by the collet or back-plate. With a square blank the corners extend within the shell and are firmly grasped when the back and shell are clamped together, and the width of the blank may thus be less than that of a circular piece to afford the same security. The use of square blanks permits me to feed the blanks to the button-machine automatically, as a ribbon of suitable width can be readily fed to the button-molds and sections cut off to form the square pieces required to cover the wad and form the tuft. The following advantages are therefore secured by the use of a square blank: First, it permits the use of less material to form a covering which can be secured firmly to the shell; second, none of the material is cut to waste, as in forming round blanks, and, third, the feeding of the wad-coverings to the button-machine by hand is avoided and the operation of making the button rendered wholly automatic.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is a section of the completed button. Fig. 2 is a section of the collet alone; Fig. 3, a section of the wad alone; Fig. 4, a plan of the blank for covering the wad with a part of the attached ribbon, represented in dotted lines. Fig. 5 is a section of the fabric-blank with tuft in the form produced by pressing it into the collet. Fig. 6 is a section representing the wad and its covering detached from the outer parts of the button. Fig. 7 shows the inner side of the wad with the corners of the covering turned down upon the same. Fig. 8 represents the tool for pressing the blank into the collet to produce the shape shown in Fig. 5. Fig. 9 is a vertical section of the punch employed for bending the cor-

ners of the covering or blank upon the inner side of the wad. Fig. 10 is a section of the die for holding the collet and wad with the covering while its corners are bent over the wad. Fig. 11 is a section of the adjacent parts of the punch and die operating to bend the corners of the blank inward, and Fig. 12 is a similar section showing the operation of the punch to finally press the corners firmly down upon the inner side of the wad. Fig. 13 is a section of a button with metal eye upon the collet or back.

a designates the square blank formed of woven fabric to cover the wad or shell.

b designates an annular collet or back formed with flaring flange at the margin and with central opening *c* for the projection of the tuft.

d designates the wad, adapted to fit within the collet.

e designates the shell upon the front of the button, which is shown in Fig. 1 with flange *e'* clamped upon the flaring edge of the collet.

f designates the tuft formed upon the wad-covering, and *a'* designates the corners of the blank, which are shown in Figs. 6 and 12 turned down upon the inner side of the wad and in Fig. 1 clamped thereon by the pressure of the shell *e*.

By properly proportioning the blank *a* its corners *a'* are adapted to almost or entirely cover the inner side of the wad, as shown in Fig. 7, and the shell *e* thus presses upon a large portion of the wad-covering and holds it firmly from pulling out of the collet when strain is applied to the tuft *f*, as in ordinary use. Fig. 5 shows the wad-covering shaped to fit within the collet and formed with the tuft projection *f*. Such form of the covering is produced by using a punch *g* of corresponding shape, (see Fig. 8,) by which the square blank is pressed into the collet in a suitable die and the covering is conformed to the collet, while the tuft *s* is forced through the opening *c*. The previously-prepared wad is then placed within the covering, as shown in Fig. 10, and the corners of the covering are bent down upon the same, which adapts the tufted collet for use in making buttons with any desired style of front. Such tufted collets, termed "tuft-molds," are sold as an article of manufacture and are combined with a shell *e* having any desired style of covering *h* fitted over the same and turned within the edges of the shell. The edges of the shell thus covered with fabric are clamped upon the collet by ordinary means, and the tufted collet thus forms the back of the button. In practice the parts of a button are assembled and combined in a machine having a rotating disk, and Fig. 10 shows one of the dies which is mounted upon such a disk, while Fig. 9 shows a punch which is movable over the disk and operates successively over the tuft-backs in the dies as the disk is intermittently rotated.

i designates the die, having a sleeve *j* fitted

about the top of the same and sustained elastically by spring *k*. The collet and tuft-covering are shown resting upon the die within the sleeve and the wad in place to turn the corners *a'* of the covering down upon the inner side of the same.

In Fig. 9 the punch *l* is also provided with a spring-sleeve *m*, having a spring *n* of greater strength than the spring *k*. The lower end of the sleeve is held by a pin *o* a little distance below the end of the punch *l* and is formed with a bevel or curve *p* upon its inner corner. When such punch is pressed toward the die, the sleeve *m* presses the sleeve *j* downwardly and brings the corners *a'* of the wad-covering against the bevel *p*, which forces the corners *a'* inwardly, as shown in Fig. 11. When the bevel *p* strikes the corner of the collet, the motion of the sleeve *m* is arrested, while the downward movement of the punch *l* continues and presses the corners *a'* close to the inner side of the wad, as shown in Fig. 6, which completes the covered wad in readiness to combine with the shell. The application of my invention to covering the shell is shown in Fig. 13 upon a metal-eye button.

The shell may be provided with any style of covering *h* before its connection with the back *b*, the inner edge of such covering being turned within the shell by suitable means before the back is placed therein and is locked securely when the flange *e'* is pressed upon the margin of the collet in connecting the two.

From the above description it will be seen that the essential feature of my invention is the use of a square blank of woven fabric for covering the shell or tuft of sectional metallic buttons, as the corners of such a square blank are adapted to be folded within the button and secured between the back and front parts when they are connected together. The use of such a square blank produces a very material improvement in the product, as the corners of the blank extend much farther within the button and are gripped more securely between its front and back parts than is possible where a round blank is used, as the edge of a round blank cannot be extended very far within the button, because in such case it gathers and wrinkles. The corners of the square blank form four tongues, which can be, as shown in Fig. 7, accommodated within the button without interference from one another, although they may extend to the center of the button and the front and back of the button get a more extended hold upon the edge of the blank and grip it more securely than has been common with the round blanks heretofore used.

In tufting articles of upholstery the tuft or cloth shank upon the tuft-button is subjected to a severe pulling strain, as the buttons are pulled by the attaching-thread down into the surface of the article, which resists elastically such downward pull and produces a constant tension upon the cloth shank. With the tuft-

buttons heretofore made the tuft sometimes pulls from the collet and the button is detached; but I find in practice that the tufts formed from a square blank according to my invention cannot be pulled out of the collet, and the tuft-buttons thus constructed are not therefore liable to be detached from the tufted article. The square blank thus performs a function which cannot be performed by the round blank and gives to the finished product a character which is different from that heretofore known.

Having thus set forth the nature of the invention, what is claimed herein is—

1. The combination, with a button-collet and the wad fitted therein, of a square blank of woven fabric shaped at the center to form the tuft, and clamped between the wad and the collet with its corners folded upon the inner side of the wad.

2. The combination, with a button-collet and a wad fitted therein, of a square blank of woven fabric molded of cup shape to form the tuft and embrace the edges of the wad, and having its corners folded over the inner surface of the wad, as and for the purpose set forth.

3. A button having a square blank of woven fabric applied to the shell or wad, with its corners folded over within the button and secured between the back and front parts, substantially as herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERICK W. LUDINGTON.

Witnesses:

E. M. ROBERTS,
W. E. NORRIS.